

Title *Prepn. of polymeric iron sulphate - by oxidising acidic aq. soln. of ferrous sulphate at ambient pressure in absence of oxidn.*

Patent Data

Patent Family

WO9523765 A1 19950908 DW1995-41 C01G-049/14 Eng 22p * AP: 1995WO-GB00483 19950306 DSNW: AM AU BB BG BR BY CA CN CZ GB GE HU JP KG KP KR KZ LK LT LV MD MG MN NO NZ PL RO RU SI SK TJ TT UA US UZ VN DSRW: AT BE CH DE DK ES FR GB GR IE IT KE LU MC MW NL OA PT SD SE SZ UG

AU9518541 A 19950918 DW1995-51 C01G-049/14 FD: Based on WO9523765 AP: 1995AU-0018541 19950306

EP-749402 A1 19961227 DW1997-05 C01G-049/14 Eng FD: Based on WO9523765 AP: 1995EP-0910624 19950306; 1995WO-GB00483 19950306 DSR: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE

US5785862 A 19980728 DW1998-37 C01G-049/14 FD: Based on WO9523765 AP: 1995WO-GB00483 19950306; 1996US-0700534 19960918

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Abstract

Basic Abstract

WO9523765 A Prepn. of a polymeric form of $\text{Fe}_2(\text{SO}_4)_3$ comprises oxidising an acidic aq. soln. of ferrous sulphate to form $\text{Fe}_2(\text{SO}_4)_3$ in the soln. at ambient pressure and in the absence of oxidn. catalyst. The $\text{Fe}_2(\text{SO}_4)_3$ is at least partially hydrolysed by the addn. to the soln. of at least one base and the $\text{Fe}_2(\text{SO}_4)_3$ is kept in contact with the base at a temp. for sufficient time for polymerisation of at least partially hydrolysed $\text{Fe}_2(\text{SO}_4)_3$.

Also claimed is a method of treating water using the sulphate.

he pH of the aq. soln. prior to oxidn. is < 2 (esp. 0.8-1.5). The oxidn. is a one step oxidn. stage, and the oxidn. temp. is $< 110^\circ\text{C}$ (pref. 15-50) $^\circ\text{C}$. The oxidn. time is up to 3 (pref. 1) hr. The oxidn. step concn. of Fe^{2+} ions in soln. is < 2.5 (pref. 0.25)% $\text{Fe}^{2+}/\text{Fe}^{3+}$.

During the hydrolysis step, $\text{Fe}(\text{III})$ hydrolysis species of formula (A) and polynuclear complexes of $\text{Fe}(\text{III})$ of formula (B) form as the polymeric form of $\text{Fe}_2(\text{SO}_4)_3$. The hydrolysis stage is carried out immediately after the oxidn. stage without removing or otherwise purifying the $\text{Fe}_2(\text{SO}_4)_3$ formed.

The oxidising agent comprises ozone, HNO_3 , peroxide, perchlorate and/or persulphate (esp. HNO_3 and/or H_2O_2). The aq. soln. comprises FeSO_4 and H_2SO_4 . The base comprises an hydroxide or a bicarbonate of an alkali metal.

USE - The polymeric $\text{Fe}_2(\text{SO}_4)_3$ is useful as a coagulant or flocculant and for purifying and/or decolourising water and reducing pollutants in industrial and/or municipal wastewaters.

ADVANTAGE - The polymeric $\text{Fe}_2(\text{SO}_4)_3$ (PFS) is obt'd. by a more economical process and confers better performance. (Dwg. 0/0)

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